

What is claimed is:

1. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, wherein
 - only interference signals having levels exceeding a predetermined threshold are removed from input signals.
2. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, comprising:
 - input-signal control means for restricting the effective word length of a digital value of an input signal;
 - interference-signal estimation means for estimating interference signals included in input signals in accordance with the input signal whose effective word length is restricted;
 - interference-signal extraction means for extracting interference signals included in input signals in accordance with an estimation result by the interference-signal estimation means; and
 - interference-signal removal means for removing extracted interference signals from input signals.
3. The interference-signal removing apparatus according to claim 2, wherein

the interference-signal extraction means extracts interference signals from input signals whose effective word lengths are restricted.

4. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, comprising:

input-signal control means for adding noises to input signals;

interference-signal estimation means for estimating interference signals included in input signals in accordance with input signals to which noises are added;

interference-signal extraction means for extracting interference signals included in input signals in accordance with an estimation result by the interference-signal estimation means; and

interference-signal removal means for removing extracted interference signals from input signals.

5. The interference-signal removing apparatus according to claim 4, wherein

the interference-signal extraction means extracts interference signals from input signals to which noises are added.

6. An interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals, comprising:

input-signal control means for multiplying input signals by a control coefficient of less than 1;

interference-signal estimation means for estimating interference signals included in input signals in accordance with input signals that are multiplied by the control coefficient;

interference-signal extraction means for extracting interference signals included in input signals in accordance with an estimation result by interference-signal estimation means; and

interference-signal removal means for removing extracted interference signals from input signals.

7. The interference-signal removing apparatus according to claim 6, wherein

the interference-signal extraction means extracts interference signals from input signals multiplied by a control coefficient.

8. The interference-signal removing apparatus according to claim 2, wherein

the input-signal control means has interference-signal-level estimation means for estimating levels of interference signals included in input signals and controls input signals in accordance with estimated interference-signal levels.

9. The interference-signal removing apparatus according to claim 4, wherein

the input-signal control means has interference-signal-level estimation means for estimating levels of interference signals included in input signals and controls input signals in accordance with estimated interference-signal levels.

10. The interference-signal removing apparatus according to claim 6, wherein

the input-signal control means has interference-signal-level estimation means for estimating levels of interference signals included in input signals and controls input signals in accordance with estimated interference-signal levels.

11. A base-station system of mobile-communication systems comprising an interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals to supply signals radio-received from a mobile-station system to the interference-signal removing apparatus and remove interference signals included in the signals by the interference-signal removing apparatus, wherein

the interference-signal removing apparatus removes only interference signals having levels exceeding a predetermined threshold.

12. A base-station system of mobile-communication systems comprising an interference-signal removing apparatus for removing narrow-band interference signals from input

signals including wide-band desired signals and the narrow-band interference signals to supply signals radio-received from a mobile-station to the interference-signal removing apparatus and remove interference signals included in the signals, wherein

the interference-signal removing apparatus includes input-signal control means for restricting the effective word length of a digital value of an input signal, interference-signal estimation means for estimating interference signals included in input signals in accordance with the input signal whose effective word length is restricted, interference-signal extraction means for extracting interference signals included in input signals in accordance with estimation results by the interference-signal estimation means, and interference-signal removal means for removing extracted interference signals from input signals.

13. A base-station system of mobile-communication systems comprising an interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals to supply signals radio-received from a mobile-station to the interference-signal removing apparatus and remove interference signals included in the signals, wherein

the interference-signal removing means includes input-signal control means for adding noises to input signals,

interference-signal estimation means for estimating interference signals included in input signals in accordance with noise-added input signals, interference-signal extraction means for extracting interference signals included in input signals in accordance with estimation results by the interference-signal estimation means, and interference-signal removal means for removing extracted interference signals from input signals.

14. A base-station system of mobile-station systems comprising an interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals to supply signals radio-received from a mobile-station to the interference-signal removing apparatus and remove interference signals included in the signals, wherein

the interference-signal removing apparatus includes inputs-signal control means for multiplying input signals by a control coefficient of less than 1, interference-signal estimation means for estimating interference signals included in input signals in accordance with input signals multiplied by the control coefficient, interference-signal extraction means for extracting interference signals included in input signals in accordance with estimation results by the interference-signal estimation means, and interference-signal removal means for removing extracted interference signals from input signals.

15. A diversity reception system having an interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals on at least one branch to make it possible to supply a signal of the at least one branch to the interference-signal removing apparatus and remove interference signals included in the signal by the interference-signal removing apparatus, wherein

the interference-signal removing apparatus removes only interference signals having levels exceeding a predetermined threshold from input signals.

16. A diversity reception system having an interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals on at least one branch to make it possible to supply a signal of the at least one branch to the interference-signal removing apparatus and remove interference signals included in the signal by the interference-signal removing apparatus, wherein

the interference-signal removing apparatus includes input-signal control means for restricting the effective word length of a digital value of an input signal, interference-signal estimation means for estimating interference signals included in input signals in accordance with the input signal whose effective word

length is restricted, interference-signal extraction means for extracting interference signals included in input signals in accordance with estimation results by the interference-signal estimation means, and interference-signal removal means for removing extracted interference signals from input signals.

17. A diversity reception system having an interference-signal removing apparatus for removing narrow-band interference signals from input signals including wide-band desired signals and the narrow-band interference signals on at least one branch to make it possible to supply a signal of the at least one branch to the interference-signal removing apparatus and remove interference signals included in the signal by the interference-signal removing apparatus, wherein

the interference-signal removing means includes input-signal control means for adding noises to input signals, interference-signal estimation means for estimating interference signals included in input signals in accordance with noise-added input signals, interference-signal extraction means for extracting interference signals included in input signals in accordance with estimation results by the interference-signal estimation means, and interference-signal removal means for removing extracted interference signals from input signals.

18. A diversity reception system having an interference-signal removing apparatus for removing narrow-band

interference signals from input signals including wide-band desired signals and the narrow-band interference signals on at least one branch to make it possible to supply a signal of the at least one branch to the interference-signal removing apparatus and remove interference signals included in the signal by the interference-signal removing apparatus, wherein

the interference-signal removing apparatus includes inputs-signal control means for multiplying input signals by a control coefficient of less than 1, interference-signal estimation means for estimating interference signals included in input signals in accordance with input signals multiplied by the control coefficient, interference-signal extraction means for extracting interference signals included in input signals in accordance with estimation results by the interference-signal estimation means, and interference-signal removal means for removing extracted interference signals from input signals.